

STARIK, I. Ye.

STARIK, I. Ye., otvetstvennyy red.; SHCHERBAKOV, D.I., akademik, red.;  
BARANOV, V.I., prof., red.; SHATSKIY, N.S., akademik, red.;  
POLKANOV, A.A., akademik, red.; VINOGRADOV, A.P., akademik, red.;  
AFANAS'YEV, G.D., red.; GERLING, E.K. prof., red.; PEKARSKAYA,  
T.B., kand.geol.-min.nauk, red.; TUGARINOV, A.I., red.;  
CHERDYNTSEV, V.V., red.; POLYAKOVA, T.V., tekhn.red.

[Proceedings of the fourth session of the Commission for the  
Determination of the Absolute Age of Geological Formations,  
May 12-14, 1956] Trudy chetvertoi sessii Komissii po opredeleniiu  
absolyutnogo vozrasta geologicheskikh formatsii; 12-14 maia 1955 g.  
Moskva, 1957. 297 p. (MIRA 11:1)

1. Akademiya nauk SSSR. Komissiya po opredeleniyu absolyutnogo  
vozrasta geologicheskikh formatsiy. 2. Chlen-korrespondent  
AN SSSR (for Starik, Afanas'yev).  
(Geology, Stratigraphic)

STARIK, I. YE.

KHLOPIN, V.G.; VINOGRADOV, A.P., akademik, redaktor; GRINBERG, A.A., redaktor;  
GREBENSHCHIKOVA, V.I., kandidat khimicheskikh nauk, redaktor; KLOKMAN,  
V.R., kandidat khimicheskikh nauk, redaktor; NIKITIN, B.A., redaktor  
[deceased]; PASVIK, M.A., kandidat khimicheskikh nauk, redaktor,  
[deceased]; RATNER, A.P., doktor khimicheskikh nauk, redaktor [deceased];  
STARIK, I.Ye., redaktor; BROITMAN, Ya.A., redaktor izdatel'stva;  
PEVZNER, R.S., tekhnicheskii redaktor

[Collected works] Izbrannye trudy. Moskva, Izd-vo Akad. nauk SSSR.  
Vol.2. [Works on inorganic and analytic chemistry and on geochemistry]  
Trudy po neorganicheskoi i analiticheskoy khimii i po geokhimii. 1957.  
(MLBA 10:8)  
306 p.

1. Chlen-korrespondent Akademii nauk SSSR (for Grinberg, Starik,  
Mikitin)  
(Chemistry, Analytic) (Chemistry, Inorganic) (Geochemistry)

STARIN, I. YE.

KHLOPIN, V.G.; NIKITIN, B.A. [deceased] otvetstvennyy redaktor; RATNER, A.P. [deceased] doktor khimicheskikh nauk, otvetstvennyy redaktor; VINOGRADOV, A.P., akademik, redaktor; GRINBERG, A.A., redaktor; GREENSHCHIKOVA, V.I., kandidat khimicheskikh nauk, redaktor; KLOZMAN, V.R., kandidat khimicheskikh nauk, redaktor; PASVIK, M.A. [deceased] kandidat khimicheskikh nauk, redaktor; ~~STARIN~~ RIK, I.Ye., redaktor; BROITMAN, Ya.A., redaktor izdatel'stva; PEVZNER, R.S., tekhnicheskii redaktor

[Selected works] Izbrannye trudy. Moskva, Izd-vo Akad. nauk SSSR.  
Vol. 1 [Works in the field of radiochemistry] Trudy v oblasti radiokhimii. 1957. 370 p. (MLA 10:4)

1. Chlen-korrespondent Akademii nauk SSSR (for Nikitin, Grinberg, Starik

(Radiochemistry)

STARIK, I. Ye. MELIKOVA, O. S.

"Emanation as a Criterion of the Solid State"(theses)

STARIK, I. Ye.

AUTHOR: 04 Zolotov, Yu. A.

89-4-5-23/26

TITLE: Conference on the Use of Radioactive Isotopes in Analytic Chemistry (Soveshchaniye po primeneniyu radioaktivnykh izotopov v analiticheskoy khimii)

PERIODICAL: Atomnaya Energiya, 1958, Vol 4, Nr 5, pp 49-495 (USSR)

ABSTRACT: In Moscow on December 2-4, 1957, a meeting on the use of radioactive isotopes in analytic chemistry was called by the Department of Chemistry of the Academy of Sciences (USSR) and the Committee on Analytic Chemistry of the Institute of Geochemistry and Analytic Chemistry imeni V. I. Vernadskiy. The meeting was attended by 450 members of various scientific research institutes, institutions of higher learning, and industrial enterprises, including 30 scientists from England, Bulgaria, the Chinese People's Republic, Poland, Rumania, Czechoslovakia, and the United States. The purpose of the meeting was to consider the work of the Soviet Union in 1) the use of radioactive isotopes for the development of new methods of analysis based on radioactivity, 2) developing the theoretical bases of analytic chemistry, 3) improving and testing the methods of separating and differentiating chemical elements, and 4) determining those physico-chemical values which have analytical

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Conference on the Use (Cont.)

significance. The 50 reports presented at this meeting will be published in a collection under the title "The Application of Radioactive Isotopes in Analytic Chemistry" (Primeneniye radioaktivnykh izotopov v analiticheskoy khimii). Following are the general areas of consideration and summaries of the reports given at the meeting:

I. Methods of analysis based on radioactivity:

I. Ye. Zimakov and G. S. Rozhavskiy (Gintsvetmet [State Institute of Nonferrous Metals]) - a new variant of the method for determining minute quantities in mixtures, called the method of "multi-radioactive dilution", which eliminates measurement of the specific activity of preparations - thereby simplifying analysis. I. P. Alimarin and G. H. Mlinovich (GEOKhI [Geochemical Institute of the Academy of Sciences (USSR)]) - a method for separating tantalum from titanium, zirconium, and niobium; and identifying tantalum by isotopic dilution. The precipitation of tantalum was induced by a new organic reagent, [ammonium benzeneselenate] (benzolseleninovokislyy ammoniy). Radiometric titration (two reports; author not given) - a new method of volumetric analysis in which the point of equivalence is determined by measuring the activity of the solution. K. B. Yatsimirskiy and Ye. N. Roslyakova

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Conference on the Use (Cont.)

83-4-5-23-/26

(Ivanovo Institute of Chemical Technology) - the use of solutions of complex compounds (luteo salts) of  $\text{Co}^{60}$  for identifying large anions (phosphates, molybdates, and sulfates) by the radiometric titration method. I. M. Korenman and F. R. Sheyanova (Gor'kiy State University) - the possibility of using non-isotopic indicators in radiometric titration and other areas of analytic chemistry. A. I. Kulak (Moscow Institute of Chemical Technology imeni D. I. Mendeleev) - the determination of micro-admixtures ( $10^{-5}$  to  $10^{-6}$  %) of cobalt, copper, tellurium, arsenic, and antimony in ferrous oxides. A. A. Zhukhovitskiy and others (USSR) - development of a new rapid method of analysis based on the reflection (backward scattering) of beta-rays ( $\beta$ -rays). V. B. Gaydadyov (GEOKhI) and L. I. Il'ina (Moscow Electric Light Factory) - determination of the properties of binary tantalum-niobium alloys by the  $\beta$ -ray-reflection method.

- II. Methods of identifying and separating elements: M. M. Senyavin (GEOKhI) - chromatographic analysis using radioactive isotopes; for example, research on separating infinitely small quantities of substances, quantitative analysis by isotopic dilution, etc. E. I. Il'yenko, B. P. Nikol'skiy and A. M. Trofimov (RIAN [Radium Institute of the Academy of Sciences (USSR)]) - the results of research on the adsorption of mercury in ion exchange resins.

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Conference on the Use (Cont.)

L. V. Borisova (GEOKhI) - data on the distribution of rhenium and molybdenum between [anionite] EDE-10 and solutions of hydrochloric acid. A. K. Lavrukina, K. Yun-Pin and V. Knobloch (GEOKhI) - a new complex-forming substance [trioxoglutaric acid] (triksiglutarovaya kislota), which is no less effective for identifying purposes than lactic acid used at present. V. I. Kuznetsov and T. G. Akimova (GEOKhI) - separating of uranium from sea-water by the co-precipitation of [thiocyanate] (rodanidnyy) complexes of uranyl with the sedimentation of a large organic cation of hodanide - methyl violet. Some reports were related to the question of co-precipitation in inorganic collectors: [Yu. V. Morachevskiy and A. I. Novikov (Leningrad State University) - "Coprecipitation of several elements of low concentration with metal hydroxides". I. Ye. Starik, F.Ye.Starik, and A. N. Apollonova (RIAN) - "Carbonate method of separating micro-quantities of uranium from weighable amounts of iron". A. K. Lavrukina (GEOKhI) - examination of peculiarities in the behaviour of insignificant concentrations of radioactive isotopes in solutions, and experimental difficulties caused by the loss of elements adsorbed in filters and glass; the formation of radio-colloids, etc. V. P. Shredov and L. N. Ivanova (RIAN) - methods of separating the isotopes  $\text{Mo}^{96}$ ,  $\text{Ag}^{111}$ ,  $\text{Cd}^{115}$  and  $\text{Ba}^{140}$  from complex mixtures.

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III. Some general problems of analytical chemistry: N. I. Izmaylov and V. S. Chernyy (Khar'kov State University) - research on the influence of the nature of solvents on the solubility of silver chlorides and cesium. The authors related the degree of solubility to the dielectric constant of the solvent. D. M. Ziv and I. A. Efros (RIAN) - a method for determining solubility by the "ultra-micro" method. N. P. Komar (Khar'kov State University) - (in connection with the above method), reported on the use of radiochemical measurements in combination with a determination of the molar coefficient of absorption for the study of complex ions in two-phase systems. I. M. Kol'tgof (Minnesota State University, USA) - new data characterizing the aging and development of crystalline sediments with the aid of radioactive isotopes. A. K. Lavrukhina and S. S. Rodin (GEOKhI) - the results of several experiments with the behaviour of element 87 (France) by co-precipitation with various carriers, extraction by solvents, etc. I. M. Irving (Oxford University, England) - study of the analytical properties of indium with the aid of radioactive isotopes. A. A. Grizik and N. I. Marunina (Giredmet [State Rare Metals Scientific Research Institute]) - the use of radioactive isotopes for control of production, for example, production of rare-earth metals.

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1. Conferences--Radioactive Isotopes--Moscow 2. Isotopes (Radioactive)  
--Applications

Starik, I. E.

Distr: 4E2c/4E4j

27

✓ The conditions of occurrence of uranium in ocean water. I. E. Starik and L. B. Kolyadin (Radium Inst., Acad. Sci. U.S.S.R., Leningrad). *Geokhimiya* 1957, 204-13. Report of an exptl. study of concns. of U in ocean water. The methods of investigation were as follows: (1) ultrafiltration, (2) adsorption by ion exchangers, (3) adsorption on glass, and (4) measurement of the electrophoretic mobilities. All of these properties were detd. for solns. in the pH range of 2-10. The following were used as exptl. solns.: (1) samples of ocean water, (2) soln. contg. no org. substances, and contg.  $2 \times 10^{-4}$  to  $5 \times 10^{-4}$  g. U/l., and (3) the same soln. contg. 0.1 g. U/l. For a  $\text{CO}_2$  content in ocean water greater than  $n \times 10^{-4}N$  ( $\text{pH} > 7.5$  at  $p \text{ CO}_2 = 5 \times 10^{-4}$  atm.) U occurs as the complex,  $[\text{UO}_2(\text{CO}_3)_3]^{4-}$ . For a  $\text{CO}_2$  content of less than  $n \times 10^{-4}N$  ( $\text{pH} < 7.5$  at  $p \text{ CO}_2 = 5 \times 10^{-4}$  atm.) U occurs in ocean water as products of hydrolysis adsorbed on Si-contg. colloidal particles. At an  $\text{eH}$  of less than approx. -0.1 v. the U of ocean water can be reduced to the quadrivalent form. 81 references. G. S. M.

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STARIK, I.Ye.

~~Materials on the Soviet scale for geochronology.~~ Biul.Kom.po  
opr.abs.vost.geol.form. no.2:5-7 '57. (MIRA 10:4)  
(Geological time)

Starik, I.E.

<sup>27</sup>  
Determination of the ratio of plutonium to uranium in pitchblende. I. E. Starik, A. P. Ratner, M. A. Pasyuk, and F. L. Ginzburg. Geokhimiya 1959, No. 2, 142-8.  
A no. of methods of sepn. and purification of plutonium were studied, as a result of which 2 schemes having independent application were developed. Purification of Pu from the natural  $\alpha$ -active radioelements, which was based on copptn. of Pu with uranyl diacetate and extn. of Pu with ether, was described. In freeing the Pu from Pa,  $K_2Cr_2O_7$  soln. was added to the uranyl nitrate soln. contg. Pa, and the soln. was heated at 90-8° for an hr. U was pptd. from the hot soln. with a double vol. of 45% soln. of NaOAc. The amt. of Pa was detd. by copptn. with zirconium mandelate. The resulting soln. was measured for  $\beta$ -activity with an electrometer. In order to free the Pu from Th by pptn. of the uranyl diacetate,  $UX_1$  was used as indicator. After sepn. of the diacetate the  $UX_1$  content in soln. was detd. by pptn. on a  $Fe(OH)_3$  ppt. The hydroxide ppt. was dissolved in  $HNO_3$ , then the soln. was placed in an electrometer for measurement. The freeing of Pu from Ra was studied for a pitchblende contg. 43.5% U. After sepn. of U as the uranyl diacetate, hydroxides were pptd. in the filtrate by alkali. The hydroxide ppts. were dissolved in 1.5N HCl soln., transferred to a diffuser and the Ra content was detd. by the usual emission method. For detn. of the Po content the study was made on solns. of uranyl nitrate.

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STARIK, I. E., RATNER, A. P.

After two oxidizing diacetate pptns. the quantity of Po in the ppt. and soln. was detd. by the method of electrochem. sepn. of Po on a Cu disk. For further freeing of the Pu from the other radioelements a method of extn. of Pu by ether was considered. A 2N HNO<sub>3</sub> soln. contg. all the sol. elements of the ore was oxidized with K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> soln. at 90-5° for an hr. Then the cooled soln. was satd. with dry NH<sub>4</sub>NO<sub>3</sub> and the U extd. with ether. Po content in the ether fraction was detd. by the method of electrochem. sepn. of Po on a Cu disk. Good sepn. of Pu from the series of radioelements, except Pa, was attained. In the pitchblende studied this ratio Pu<sup>III</sup>:U was  $(2.0 \pm 0.3) \times 10^{-11}$ . G. S. M.

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583

AUTHORS: Starik, I.<sup>U</sup>E. and Kositsin, A.V.

TITLE: The State of Small Quantities of Radio-Elements in Solutions.  
I. State of 3- and 4-valent Ruthenium in Hydrochloric Acid Solutions. (Sostoyanie Malykh Kolichestv Radioelementov v Rastvorakh. I. Sostoyanie 3- i 4-valentnovo ruteniya v solyanokislykh rastvorakh).

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry, Vol.II, No.2, pp.444-451. (U.S.S.R.), 1957

ABSTRACT: A characteristic feature of radio-elements is their ability to become adsorbed on precipitates and colloidal impurities present in solutions as well as on the walls of chemical apparatus. Thus adsorption effects are of great importance in determining the behaviour of small quantities of radio-elements and provide information on the state of these elements in solution. The radioactive isotopes of ruthenium are one of the main splinter elements and in the present investigation parallel studies were made of the adsorption of ruthenium on glass and of its state in hydrochloric acid solutions.

The adsorption on glass of 3- and 4- valent ruthenium in relation to the pH was studied for hydrochloric-acid solutions with ruthenium concentrations of  $10^{-4}$  to  $10^{-7}$  mol. Ultra-filtration was used to determine the range of existence in these solutions

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STARIK

I E.

7  
 I. State of small quantities of radioelements in solutions.  
 II. State of thallium in sulfuric acid solutions. I. E. Starik and A. V. Kostren. *Zhur. Neorg. Khim.* 2, 1171-4 (1957); cf. *C.A.* 51, 17353c. The adsorption of  $Tl^{+}$  and  $Tl^{3+}$  on glass from  $H_2SO_4$  solns. was detd. in relation to the pH of the soln. A sharp difference was noted in the adsorption of  $Tl^{+}$ , which increases with increasing pH, and in the adsorption of  $Tl^{3+}$  which has a sharp max. at pH of 3. The colloidal properties of  $Tl^{3+}$  were studied in relation to the pH of the medium and it was shown that the adsorption of  $Tl^{3+}$  is closely related to its formation of colloidal suspensions.  
 III. State of zirconium-95 in aqueous solutions. I. E. Starik, A. P. Ratner, L. A. Skul'skiy, and K. A. Gavrilov. *Ibid.* 1175-82. The state of  $Zr^{4+}$  ( $10^{-11}$  mole) in  $HNO_3$  and  $NH_3$  solns. was studied by the following methods: adsorption by a paper filter; desorption from filters; ultrafiltration; electrophoresis; and centrifugation. In  $HNO_3$  solns. up to pH = 4.2  $Zr^{4+}$  is in the form of pos. ions. At pH = 4.2 the  $K_{sat}$  of  $Zr(OH)_4$  is reached and a negatively charged colloidal suspension is formed. The retention of  $Zr^{4+}$  on a filter paper is due to adsorption. For pH < 4.2 ion-exchange adsorption takes place and for pH > 4.2  $Zr^{4+}$  is adsorbed in the form of colloidal particles. It was shown that  $Zr^{4+}$  and  $Nb^{5+}$  can be sepd. by adsorbing  $Nb^{5+}$  on porous glass filters from 10N  $HNO_3$  solns. J. Rovtar Leach  
 NS

STARIK, I.Ya.; RATNER, A.B. [deceased]; SAUL SKIY, I.A.; GAVRILOV, K.A.

Conditions of microquantities of radicelements in solutions. Part 3:  
Condition of  $Zr^{95}$  in aqueous solutions. Zhur. neorg. khim. 2 no.5:  
1175-1182 My '57. (MLRA 10:8)  
(Zirconium--Isotopes) (Water)

STARIK, I. E.

Distr: 4E1j/4E3d

✓ State of microquantities of radioelements in solutions.

IV. The state of microquantities of uranium in solutions.

I. E. Starik and L. B. Kolyadip. *Zhur. Neorg. Khim.* 2, 1432-5(1957); cf. *C.A.* 52, 1805g. — The state of microquantities of U, in solns. of uranyl chloride, was studied for different pH values by using methods of ultrafiltration, electrophoresis, and centrifugation. The adsorption of U compds. on glass, a cationite, and an anionite was detd. for pH 2-10 from solns. of  $UO_2Cl_2$  contg.  $5 \times 10^{-4}$  and  $1 \times 10^{-4}$  mole. The exptl. data show that for the pH range 2.5-6.5 and a concn. of  $5 \times 10^{-4}M$  U forms a true colloidal soln. At a concn. of  $1 \times 10^{-4}M$  U forms pseudocolloidal suspensions in the pH range 2.5-7.5 owing to the adsorption of impurities which are present in the soln.

J. Rovtar Leach

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STARIK, I.Ye.; KOLYADIN, L.D.

Conditions for the presence of uranium in ocean water [with  
summary in English]. *Geokhimiia* no.3:204-213 '57. (MLRA 10:7)

1. Radiyevyy institut AN SSSR, Leningrad.  
(Uranium) (Sea water)

STARIK, I.Ye.; STARIK-SMAGINA, A.S.

Polarographic determination of uranium. Trudy Radiy. inst. AN  
SSSR 5 no.2:105-116 '57. (MLRA 10:8)  
(Uranium) (Polarography)

STARIK, I.Ye.; STARIK, F.Ye.

Chromatographic analysis of small quantities of lead. Trudy Radiov.  
inst. AN SSSR 5 no.2:129-133 '57. (MLRA 10:8)  
(Lead) (Chromatographic analysis)

STARIK, I.Ye.; MELIKOVA, O.S.

Emanating properties of minerals. Trudy Radiev. inst. AN SSSR  
5 no.2:184-202 '57. (MLRA 10:8)  
(Radioactivity) (Minerals)

STARIK. I. Ye.

In memory of Vitalii Gregor'evich Khlopin. Trudy Radiev. inst.  
AN SSSR 6:5-11 '57. (MIRA 11:2)  
(Khlopin, Vitalii Gregor'evich, 1890-1950)  
(Radiochemistry)

STARIK, I.Ye.; POLEVAYA, N.I.

~~Leaching out ThX and RdTh from minerals. Trudy Radiev. inst. AN~~  
(MIRA 11:2)

SSSR 6:104-118 '57.

(Thorium compounds) (Leaching)

STARIK, I.Ye.; SOBOTOVICH, E.V.; LOVTSYUS, G.P.; AVDZEYKO, G.V.;  
LOVTSYUS, A.V.

Mode of lead occurrence in natural formations [with summary in  
English]. Geokhimiia no.7:584-591 '57. (MIRA 11:1)

1.Radiyevyy institut AN SSSR, Leningrad.  
(Lead)

Starik, I. Ye.

11-9-8/14

AUTHOR: Starik, I. Ye. and Sobotovich, E.V.

TITLE: Lead in Natural Formations and Its Isotopic Composition  
(Svinets v prirodnykh obrazovaniyakh i yego izotopnyy sostav)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, 1957,  
# 9, p 81-85 (USSR)

ABSTRACT: Lead in natural formations can occur in various forms. The stability of lead forms with respect to different temperatures and media is determined by their physico-chemical and mineralogical properties. In order to learn the possibility of fractionation of lead isotopes the authors carried out experiments with pitchblende from Ioachimsthal, Caledonian granite and a most ancient granite from Northern Karelia. The results of these experiments were the following:

1. During the sublimation of lead from the pitchblende in a hydrogen flow, the fractionation of different lead forms takes place, which leads to the change of isotopic composition of leads precipitated at different temperatures.
2. The shift of isotopic composition with temperature increase is directed toward the relative increase of the content of radiogenic lead.
3. The investigation of other samples containing lead has

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Lead in Natural Formations and Its Isotopic Composition

11-9-8/14

shown a difference in behavior of different leads.

4. The method of lead sublimation from minerals and rocks may prove to be a valuable method for investigating the forms of lead occurrence in them and estimation of their age. The article contains 1 figure, 3 tables and 2 non-Slavic references.

ASSOCIATION: Radium Institute imeni "V.G. Khlopin" (Radiyevyy institut imeni V.G. Khlopina) Leningrad

SUBMITTED: 28 December 1956

AVAILABLE: Library of Congress

Card 2/2

STARIK, I. Ye.

STARIK, I. Ye.; MELIKOVA, O. S.

Emission potentiality as a criterion of solid state (theses).  
Probl. kin. i kat. 9:314 '57. (MIRA 11:3)  
(Radioactive substances) (Solids)

STARIK, I. E.

✓ 469. New method of determining protactinium.  
I. E. Starik, A. P. Batner, M. A. Pavuk and L. D.  
Sheldina (Radium Inst., Acad. Sci., USSR, Leningrad). *Zhur. Anal. Khim.*, 1957, 12 (1), 87-91.—  
By co-pptn. with Zr mandelate, small amounts of Pa can be collected, and completely separated, if two pptn. are carried out, from Po, Ra and other radioactive elements. The soln. (25 ml) is treated with 25 ml of conc. HCl, 1 ml of a soln. containing 10 mg of Zr, and 50 ml of 16% mandelic acid soln. After 1 hr. at  $\approx 100^\circ$  and being set aside for 24 hr., the soln. is centrifuged and the ppt. is washed with ethanol. The ppt. is dissolved in 6 N HCl after treatment with 5% NaOH, and re-precipitated.  
G. S. SMITH

1-RenL }  
1-JWM }

SMITH 1/1

STARIK, I. 42

State of trace amounts of radionuclides in liquid and solid phases. I. Starik. *Tr. Akad. Nauk SSSR* 25: 389-408 1979

The element is represented with

still follows the above rule, with a maximum of extn. at 1st increases with concn., being accompanied by hydrolysis which reaches max. at pH 7.2, after which the degree of extn. declines sharply; at pH 8-9 the degree of extn. does not depend on concn. of Po. Estn. of  $K_{dPo}$  on the basis of this work shows a variation of  $K_{dPo}$  from  $1.3 \times 10^{-10}$  at pH 7.6 and concn. of  $5 \times 10^{-12}$  to  $1 \times 10^{-10}$  at pH 8.8 and concn. of  $1.7 \times 10^{-12}$ . Exper. with centrifuging showed that max. effect of centrifuging coincides with max. adsorption, and at pH 7-10 Po predominantly forms insol. compds. Ultrafiltration max. al. coincides with adsorption max. Min. retention occurs in media in which Po exists as a colloid. The previous work on diffusion of Ra from minerals and on leaching of  $U^{238}$ , Th, and Th X from minerals is reviewed. G. M. Kosolapoff

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STARK, I. Y.

EDUCATION FOR THE YOUNG

Yon' tat y' nat'cor'it'ed

*Vasiliya* nash 598R. Limitat p. krasnaya. 77. 16 (Vasiliya) -  
Moscov, 1978. 209 p. Krasnaya shizhka i  
1 000 copies printed.

Author: V. G. Voskresenskiy, Assistant  
ing House: L. K. Zil'bergman

REF: This volume is a copy of the original.

physicians, and chief physician.

RECORDED, SET OF 2, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640

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 1917-18

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Edwin K. L. Givens (Secretary of the Board)  
National Board (Secretary of the Board)

D'Yachkova, M.I. Chemical composition and structure of the silicate-aluminate. I.G. Mineral composition and structure of the silicate-aluminate.

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Kalmanchik, V.D., and I.A. Ivanov. "Mechanical Properties of Meteorites and Meteorite Dust the Sikhotealin' Meteorite and of Meteorite and the Mechanical Properties of Stone Meteorites and the

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Talla, I.A. Opaque Minerals in Stone Meteorites  
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Breytia, N.H. Results as  
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Aeloe, A. Recent Data on Metabolism of  
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Beav. H. (Corresponding Member of the Bulgarian Academy of Sciences)  
The Meteoritic Hypothesis of the Origin of Lunar Craters  
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Zorkin, I.S. The Popularization of Meteoritics (Abridged Russian version). Moscow, U.S.S.R. The Norovako Meteorite

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**Bohly, M.A.** The Study of Fluorescence and Resonance Analysis  
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and G. Rasmussen:  
Results of a Study of a Polls Observed in  
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Final copy of  
on June 30, 1954

Donov, N. (Corresponding Member of the Bulgarian Academy of Sciences) *Presenting* over the Study of Meteorites in Bulgaria

New Center for the Study of Meteorites in Flagstaff

STARIK, L.Ye.

5(8), 21(5) PAPER I BOOK EXPLOITATION 807/1900  
 Akademika nauk SSSR. Komissiya po analiticheskoj khimii  
 Prikladnye radioaktivnyye izotopy v analiticheskoj khimii  
 (Use of Radioactive Isotopes in Analytical Chemistry) Moscow  
 Izdatel'stvo Khim., 1958. 368 p. [Series: Iiz. trudy, t. 9 (12)]  
 Brveta alip inserted. 3,000 copies printed.

Resp. Ed.: I.P. Alimarin. Corresponding Member, USSR Academy  
 of Sciences; M. of Publishing House: A.N. Yermakov; Tech.  
 Ed.: T.V. Pelyukova.

PURPOSE: The book is intended for chemists and chemical  
 engineers concerned with work in analytical chemistry.

CONTENTS: The book is a collection of the principal papers  
 presented in Moscow at the Second Conference on the Use of  
 Radioactive Isotopes. The problems discussed at the  
 conference included coprecipitation, aging, and solubility  
 of precipitates, determination of the instability constants

Card 1/10

of complex compounds, separation of rare earth metals, and  
 ion-exchange chromatography. No personalities are mentioned.  
 There are 51 references, 17% of which are Soviet, 33 German,  
 19 French, 8 Swedish, 2 Hungarian, and 2 Czech.

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Starik, L.Ye., J. Ye. Starik, and A.N. Appolomova. The Carbonate Method for Separation of Micro- quantities of Uranium from Iron	860

STARIK, I.Ye., otv. red.; SHCHERBAKOV, D.I., akad., red.; VINOGRADOV, akad.,  
red.; SHATSKIY, N.S., akad., red.; POLKANOV, A.A., akad., red.;  
AFANAS'YEV, G.D., red.; BARANOV, V.I., prof., red.; PEKARSKAYA,  
T.B., kand. geol.-miner. nauk, red.; IVANOV, B.V., red. izd-va.;  
RYLINA, Yu.V., tekhn. red.

[Proceedings of the fifth session of the Commission to Determine  
the Absolute Age of Geological Formations] Komissiya po opredeleniiu  
absolyutnogo vozrasta geologicheskikh formatsii. Trudy piatoi  
sessii...; 19-23 maia 1956 g. Moskva, 1958. 367 p. (MIRA 11:11)

1. Akademiya nauk SSSR. Komissiya po opredeleniyu absolyutnogo  
vozrasta geologicheskikh formatsii. 2. Chlen-korrespondent AN SSSR (for  
Starik, Afanas'yev).

(Geological age)

STARIK, I. Ye. (Radium Inst im V. G. Khlopin AS USSR)

"Adsorption Phenomena and Their Role in Radiochemical Investigations"

Isotopes and Radiation in Chemistry, Collection of papers of  
2nd All-Union Sci. Tech. Conf. on Use of Radioactive and Stable Isotopes and  
Radiation in National Economy and Science, Moscow, Izd-vo AN SSSR, 1958, 380pp.

This volume published the reports of the Chemistry Section of the  
2nd AU Sci Tech Conf on Use of Radioactive and Stable Isotopes and Radiation  
in Science and the National Economy, sponsored by Acad Sci USSR and Main  
Admin for Utilization of Atomic Energy under Council of Ministers USSR  
Moscow 4-12 Apr 1957.

STARIK, I. YE.

Starik, I. Ye., Butomo, S. B., Drozhzhin, V. M., Protopopov, Kh. V. - The Chemical Processing of Samples at the Radiocarbonic Dating by the Scintillation Method.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv. Akad. Nauk, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

STARIK, I. YE.,

Starik, I. Ye., E. V. Solotovich, G. V. Arzdeyko, G. I. Lovtsyus, A. V. Lovtsyus -  
The Method of Locating Lead in Radioactive Minerals.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGCN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

STARIK, I. YE.

Starik, I. Ye., Protopopov, Kh. V. - The Use of the Scintillation Method for the Determination of Age According to Radiocarbon Contents.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR Academy of Sciences at Sverdlovsk in May 1957

Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

STARIK, I. YE.,

Starik, I. Ye., F. Ye. Starik, A. N. Yelizarova - Comparative Leaching Out of  
Several Isotopes.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic  
Formations at the Department of Geologic-Geographical Sciences (OGGN) of the USSR  
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Izv. Ak Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Pekarskaya, T. B.

STARIK, I. YE.,

Starik, I. Ye., E. V. Sobotovich, G. V. Avzdeyko, G. I. Lovtsus, A. V. Lovtsyus--  
Sublimation as a Method for Determining Isotope Contents of Lead.

The Sixth Session of the Committee for Determining the Absolute Age of Geologic  
Formations at the Department of Geologic--Geographical Sciences (OGGN) of the USSR  
Academy of Sciences at Sverdlovsk in May 1957

Izv. Ak. Nauk SSSR, Ser. Geol., No. 1, 1958, p. 115-117 author Peharskaya, T. B.

STARIK, I Ye.

7-1-1/12

AUTHORS: Starik, I. Ye., Kuznetsov, Yu. V.,  
Grashchenko, S. M., Frenklich, M. S.

TITLE: On the Ionium Method of Determining the Age of Marine  
Sediments  
(K voprosu ob ioniyevom metode opredeleniya vozrasta morskikh  
osadkov)

PERIODICAL: Geokhimiya, 1958, Nr 1, pp. 3-13 (USSR).

ABSTRACT: First the authors report on the research results which have  
hitherto been obtained in this field. Then they describe their  
own research methods and the process of analysis. Seven cores  
from the marine bottom of the Indian and Pacific Ocean were in-  
vestigated. The content of Mn, Fe, CaO, Ra, Jo, Th and U, and its  
alteration with increasing depth were represented graphically.  
For most of the cores the obtained values for Ra, Th, Jo and U  
are given another time in tables. According to the distribution  
of the elements it can be distinguished between:  
1) Nearshore sediments (cores 2 and 3). The distribution of io-  
nium and radium is difficult to be explained, they are not in the

Card 1/3

On the Ionium Method of Determining the Age of Marine Sediments.

7-1-1/12

radioactive equilibrium. This is due to external influences.  
2) Sediments of average kind (core 1). The distribution of the two elements remains unclear, there is, however, already a connection in distribution.

3) Deep sea sediments (cores 4, 5, and 7). The radium concentration is reduced with increasing depth; several maxima and minima are explained by the changing conditions during sedimentation. The vertical distribution of ionium corresponds completely to that of radium.

Hence it can furthermore be concluded:  
A migration of radium in sediments does not take place. The sedimentation velocity in the marine regions of cores 4 and 5 changed only to a little extent with the time. In all cores investigated the concentration of uranium and thorium remains constant along the core. In a series of cores there was an obvious connection between the distribution of radium and ionium on the one hand and calcium on the other hand.  
There are 8 figures, 5 tables, and 13 references, 3 of which are Slavic.

Card 2/3

On the Ionium Method of Determining the Age of Marine Sediments 7-1-1/12

ASSOCIATION: Radium Institute imeni V. G. Khlopin, AN USSR, Leningrad  
(Radiyevyy institut im. V. G. Khlopina AN SSSR, Leningrad).

SUBMITTED: July 22, 1957.

AVAILABLE: Library of Congress.

1. Sedimentation analysis 2. Ionium-Application

Card 3/3

STARIK, I. V. E

Distr: 4E2c

✓ Use of the method of leaching for evaluation of the suitability of samples for determination of age by the argon method. I. E. Starik and L. A. Litvin (V.G. Khlopov). Geokhi-Radium Inst., Acad. Sci. USSR, Leningrad. Geokhi-Radium Inst., Acad. Sci. USSR, Leningrad. Since the age value depends greatly on the  $m \text{ Ar} / m \text{ K}^*$  ratio, the behavior of Ar and Kr relative to each other is of interest. Expts. were made in order to determine the effects of weak solns. of soda and  $\text{H}_2\text{SO}_4$  (0.001, 0.01, and 0.1N) on the condition of microcline, muscovite, and biotite at room temp. during periods of 3, 6, and 9 days. Expts. were carried out with agitation, but showed no loss of Ar and K by leaching. The action of 0.1N soda and 0.1N  $\text{H}_2\text{SO}_4$  on biotite for 2 months likewise produced no great loss of Ar and K. Then the same minerals were studied by heating them in concd. HCl for one hr. The Ar and K contents remained as before. Next, microcline and muscovite were treated with hot concd. HCl for 5 and 15 hrs., but this also produced no loss of Ar and K. Biotite was treated with HCl, and this did cause a loss of Ar,  $\text{K}_2\text{O}$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{Al}_2\text{O}_3$ , and  $\text{MgO}$  from the samples. The process of soln. was also confirmed by x-ray analysis. The age of each untreated biotite is less, the more sol. each given biotite is in HCl. Results obtained are of a tentative nature, but they seem to provide a possible method for evaluating the suitability of samples for age detn. by the Ar method. Gladys S. Macy

STARIK, I. Ye.

"Method of the perfect separation of micro quantities of uranium from weighable quantities of iron by means of the isotope  $U^{233}$ ."

report presented at The Use of Radioactive Isotopes in Analytical Chemistry, Conference in Moscow, 2-4 Dec 1957  
Vestnik Ak Nauk SSSR, 1958, No. 2, (author Rodin, S. S. )

62-2-28/28

AUTHORS: Starik, I. Ye., Rozovskaya, N. G.,

TITLE: Letter to the Editor (Pis'ma redaktoru)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 2,  
pp. 252-252 (USSR)

ABSTRACT:

The sorption of tellurium with glass in an alkaline medium was examined with the purpose of investigating the nature of the microquantities of radioelements in solvents. On that occasion the radioactive isotope  $Tc^{127}$  was used (half-life 115 days), due to internal conversion it was later converted to its isomer with a half-life of 9,3 hours. Both isomers are in a radioactive equilibrium, therefore their lives are characterized by the half-life of the parent-substance. It was further found that the decrease in the activity of the separation of tellurium taking place on tellurium proceeds much faster than the decrease in this activity in the solvent. Moreover measurements of the activity were made at certain intervals of time. From the obtained results may be seen that under the given conditions a selection sorption with a half-life of 9,3 hours takes place. The data given in this letter speak in favor of the me...

Card 1/2

62-2-28/28

Letter to the Editor

thod with glass as the most reliable one. It permits the characterization of the state of radioelements in the solvent.

ASSOCIATION: Institute for Radium Research imeni V.G. Khlopin (Radiyevyy institut im. V.G. Khlopina)

SUBMITTED: January 10, 1958

AVAILABLE: Library of Congress

1. Tellurium & glass-Sorption (Radioactive)-Applications
2. Tellurium 127 isotopes

USCOMM-DG-54733

Card 2/2



ST. MIKH, I.Ye.; I. MIKH, O.S.; BAKHAROV, B.A., ZAKHAROV, V.F.

Notes on studying the effect of temperature on the evaporation property  
of liquid based on radon, thoron, and actinon. Biul.Kon. po opz.abs.  
vost. mol.forn. no.3:4-51 '58. (MIRA 12:11)

(Radioactive substances)

SPARIK, I. V.; SOBOLEV, I. V.; 1978, 1979.

Report of the 1st session. Biol. Kon. 1978. (1978 12:11)

1978. (Lead)

STARIK, I.Ye.; STARIK, F.Ye.; YELIZEROVA, N.A.; FLECHAYEV, Ye.P.

Leaching AcX from minerals. Biol. Ecol. po opr. abs. vopr. geol. form.  
no. 3:60-61 '56. (MIRA 12:11)

(Leaching)

(Radium--Isotopes)

STARIK, I. Ye.

78-1-1/43

AUTHOR:

Starik, I. Ye., Corresponding Member of the AN USSR;  
President of the Organization Committee of the First  
All-Union Congress of Radiochemistry.

TITLE:

Preface to the **Published Material of the First All-Union Congress of  
Radiochemistry** (Predisloviye k publikuyemym materialam pervogo vsesoyuz-  
nogo soveshchaniya po radiokhimii).

PERIODICAL:

Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp. 3 - 5 (USSR).

ABSTRACT:

The Allunion Congress of Radiochemistry which took place in Leningrad on March 5, 1957, was, properly speaking, not the first, but the second congress, since already in 1932, a conference on radiochemistry was held in Leningrad, organized by the 1st Radio-Institute. The subjects of this congress agreed essentially with the topics of the congress in 1957. (The reports dealt with in 1952, are individually quoted).  
A great number of participants attended this congress (more than 600 persons). More than 50 reports and communications were attended to in 7 meetings. The following basic problems of theoretical radiochemistry were dealt with:

- 1 - The forms of occurrence of small quantities of radioactive substances in solutions and solids.

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78-1-1/43

Preface to the **Published Material of the First All-Union Congress of Radiochemistry.**

The congress made the following proposals for the further successful development of radiochemistry:

- 1 - To request the division of chemical sciences of the AN USSR to establish a special laboratory for the synthesis of organic solvents and complex-formers for extraction and chromatography at one of the institutes of the AN.
- 2 - For safeguarding the further extension of the works in the field of chromatography, the commission of chromatography of the division of chemical sciences of the AN USSR should be requested to take measures to increase the selection of ion exchange resins and to guarantee the availability of automatic first-class laboratory-outfits.
- 3 - To extend the study of methods for separating radioisotopes without carrier, also by using organic compounds. To request the division of chemical sciences of the AN USSR and other organizations to take measures for the supply of pure radiochemical preparations.
- 4 - To request the Ministry for Higher Education USSR to introduce lectures on radiochemistry as required subject at chemical Universities.
- 5 - In view of the increasing quantity of works on radiochemistry the Presidential Committee AN USSR should be requested to publish a new periodical in 1958, viz. the "Radiokhimiya".

Card 3/4

STARIK, I YE

78-12/43

AUTHOR: Starik, I. Ye.

TITLE: The State of Micro-Quantities of Radioactive Elements in Both Liquid and Solid Phase (Sostoyaniye mikrokolichestv radioelementov v zhidkoy i tverdogy fazakh).

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp. 6 - 15 (USSR).

ABSTRACT: In the major part of the report the author investigates whether micro-quantities of radio-elements are present in solutions, colloid or as ions. First the experimental difficulties are discussed, and the results of other investigators, above all those of Schweitzer, (reference 1) are criticized. The author divides the methods of investigation into two groups, first those which prove colloids and pseudo-colloids, i. e. adsorption on contaminations, especially  $\text{SiO}_2$ , like dialysis, ultrafiltration, ultramicroscopy, velocity of diffusion, centrifuging, secondly the adsorption and desorption with various pH-values and electrochemical methods. The author's investigations comprise: Adsorption of Po on glass in dependence on the pH-value, desorption of Po from quartz glass and pyrex-glass L-36 by  $\text{H}_2\text{O}$ , 0,1n  $\text{HNO}_3$ , 0,1n  $\text{NaOH}$ .

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The State of Micro-Quantities of Radioactive Elements in Both Liquid and Solid Phase.

The following cases generally occur:

- 1) A minimum of colloid properties corresponds to a maximum of adsorption and viceverse (Pb, Bi); a real colloid is present.
- 2) A maximum of colloid properties and adsorption coincide (Ru,  $\text{Tl}^{\text{III}}$ , Pm, La a. o.); a real colloid is present.
- 3) The maximum of colloid properties begins with very low pH-values where no adsorption on glass or paper takes place yet (Zr, U); a pseudo-colloid exists.
- 4) The adsorption of the radioelement increases with increasing pH without maximum ( $\text{Tl}^{\text{III}}$ , Ra); no colloid-phase is present.

Ion exchangers cannot be used as means of adsorption with investigations because of the more complicated conditions. The separation of Po on copper within the range of concentration  $10^{-13}$  -  $10^{-3}$  g atom/l pH 1-13 was electrochemically investigated. The solubility of Po (OH) with pH 7 amounts approximately to  $9 \cdot 10^{-10}$  g atom/l. Data on the solubility of Po, Ru, Tl, Zr, Pm, La-hydroxides are compared with data from literature.

The radiographical method (action of the solution on a photographic emulsion protected against chemical attack proved to be unfit. Concluding the author discusses very briefly the behavior of radioelements in the crystal lattice.

Card 2/3

STARIK, I. Ye.

78-123/43

AUTHORS:

Starik. I. Ye., Starik. F. Ye., Apollonova, A. N.

TITLE:

Adsorption of Micro Quantities of Uranium by Ferric Hydroxide and Desorption by Means of the Carbonate-Method. (Adsorbtsiya mikrokolichestv urana gidrookis'yu zheleza i desorbtsiya yego karbonatnym metodom).

PERIODICAL:

Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp. 121-128 (USSR).

ABSTRACT:

The adsorption of uranium on iron is important for analytical chemistry, since iron is often used as a carrier substance. The authors used  $U^{233}$  in their investigations. First the adsorption on ferric hydroxide with increasing pH is investigated. Carbonate-free ammonia serves here as basis. The maximum in the curve between pH 5 and pH 8 is explained by the fact that the hydroxide colloids are charged with the same signs outside of this range. This was electrophoretically proved. In carbonate solution the curve shows first a similar course which, however, declines steeply after pH 5.3, since uranium dissolves as complex carbonate and iron precipitates completely. The precipitation in ammoniacal medium was investigated with various quantities of uranium and iron with respect to its completeness. The precipitations and their results are summarized in a table.

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Adsorption of Micro Quantities of Uranium by Ferric Hydroxide and Desorption by Means of the Carbonate-Method.

Prior to their dealing with desorption, the authors investigate the influence of the alkali carbonates, especially of the ammonium carbonate, on the precipitation of the iron. Further the desorption of uranium is investigated, quantities of  $10^{-5}$  g are quantitatively desorbed, with quantities of  $10^{-6}$  -  $10^{-8}$  g, however, losses up to 35% occur. This is attributed to the penetration of uranium into glass or platinum with the evaporation of the acid solution, as is proved. These losses can be avoided by adding metatitanic acid.

Conclusions:

- 1) The coprecipitation of micro quantities of uranium with ferric hydroxide takes place by adsorption.
- 2) The capability of adsorption depends on the pH of the solution in ammoniacal and carbonate solution.
- 3) Micro quantities of uranium precipitate with metatitanic acid under certain conditions.
- 4) The conditions of desorption of micro quantities of uranium ( $10^{-5}$  g -  $10^{-8}$  g) from ferric-hydroxide-colloid (U:Fe = 1:10<sup>5</sup>) were determined by the carbonate-method.
- 5) The conditions of complete separation of micro quantities of uranium ( $10^{-5}$  -  $10^{-8}$  g) from solutions by means of adsorption with ferric hydroxide were determined.

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Adsorption of Micro Quantities of Uranium by Ferric Hydroxide  
and Desorption by Means of the Carbonate Method.

78-1-23/43

There are 5 figures, 8 tables, and 24 references, 13 of which are Slavic.

SUBMITTED: June 18, 1957.

AVAILABLE: Library of Congress.

Card 3/3

78-1-25/43

The State of Micro Quantities of Promethium in Aqueous Solutions.

of Pm on the pH of the solution was investigated as function of this pH. Optically polished quartz disks of 32 mm diameter and 1 mm thickness served for this purpose. The disks were previously kept in water for a long time and subsequently dried with alcohol. 4 of such small glasses were rotated throughout 1 to 4 hours in 300 ml active solution at a velocity of 60 revolutions per minute. After an alcohol bath and subsequent drying, the activity was measured on both sides by means of a counter. The concentration of the solution remained unchanged before and after the test, changes of pH were insignificant. Tests with electrophoresis had only a qualitative character, the method of the moving limit (reference 4) was applied. Particles of 30 to 40 m $\mu$  can be separated within 1 hour by centrifuging at 2500 to 2700 revolutions per minute. Separations of particles up to 1 m $\mu$  of size are achieved by ultrafiltration by means of cellophane. The combination of the two latter methods consequently makes it possible to carry out at least a rough quantitative determination of particles of various degrees of dispersion in solutions of the radio-elements. The results of adsorption of Pm on quartz glass are given in figure 1 (throughout 4 hours). With increasing pH of the solution, the adsorption increases up to pH = 6,2 in order to decrease at a further increase of pH. The dependence

Card 2/4

The State of Micro Quantities of Promethium in Aqueous Solutions

78-1-25/43

with the formation of a proper solid phase of the hydrolysed forms of promethium.

There are 3 figures, and 6 references, 2 of which are Slavic.

SUBMITTED: June 18, 1957.

AVAILABLE: Library of Congress.

Card 4/4

STARIK, I. Ye.

78-1-26/43

AUTHORS: Starik, I. Ye. , Sheydina, L. D.

TITLE: A New Method for the Radiochemical Purification of Protactinium (Novyy metod radiokhimicheskoy ochistki protaktiniya)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 1, pp.139-144 (USSR)

ABSTRACT: The object of this elaborate investigation was to discover a simple method without using hydrofluoric acid - for the radiochemical purification. Thereby Pa<sup>233</sup> was used, and zirconium was used as a carrier substance. Phthalic precipitates approximately an amount of 60 to 70 % Pa in a hydrochloric acid medium. Polonium coprecipitates to a large proportion. Therefore phthalic acid cannot be used for the afore-said purpose. Phenylarsonic acid precipitates 90 to 95 % of Pa from a hydrochloride solution. Polonium coprecipitates quantitatively and can be separated only with difficulty. For this reason phenylarsonic acid cannot be taken into consideration either. With mandelic acid Pa precipitates only partly in nitric solu-

Card 1/2

78-1-26/43

A New Method for the Radiochemical Purification of Protactinium

tion, whereas it precipitates twice with respect to quantity in hydrochloric acid solution. An optimum prescription was elaborated.

The separation of Po, Th, Ra, Ac, (the latter with La<sup>140</sup> as indicator) was investigated.

Conclusions:

- 1.) Three new methods were investigated: Precipitation with phthalic acid, with phenylarsonic acid and with mandelic acid.
- 2.) The two first methods are insufficient because polonium coprecipitates.
- 3.) The precipitation with mandelic acid allows a rapid and accurate determination with an accuracy of from 5 to 10 %.
- 4.) The precipitation with mandelic acid makes it possible to achieve simultaneously a high degree of purity of the protactinium from all natural radioelements.
- 5.) The given method simplifies essentially the purification of protactinium. There are 9 tables, and 7 references, 2 of which are Slavic.

SUBMITTED: June 18, 1957  
AVAILABLE: Library of Congress  
Card 2/2

AUTHORS: ~~Starik, I. Ye.~~, Starik, F. Ye.,  
Mikhaylov, B. A.

SOV/7-58-5-7/15

TITLE: On the Problem of the Shift of Isotopic Ratios in Natural  
Formations (K voprosu o smeshchenii izotopnykh sootnosheniy v  
prirodnykh obrazovaniyakh)

PERIODICAL: Geokhimiya, 1958, Nr 5, pp. 462 - 464 (USSR)

ABSTRACT: The method suggested by V.V.Cherryntsev (Refs 8,9) makes use  
of the measurement of the alpha and beta activity for the  
determination of the U II - U I ratio. The small  $\beta$ -activity  
can, however, be measured only with a low accuracy: therefore  
the authors of this article modified this method. As U II  
has a considerably shorter half life than U I the U II amount  
may be neglected and the total amount of uranium may be taken  
as measuring standard for U I. The sum of U I and U II is  
determined by the alpha activity. Polonium was electrolytically  
separated in the radiochemical purification, the thorium iso-  
topes were separated by the precipitation with cerium fluoride  
and radium isotopes by the precipitation with barium sulfate.  
Aluminium and iron were separated by means of ammonium carbonate.  
Uranium was determined by weighing. Uranium was separated

Card 1/3

On the Problem of the Shift of Isotopic Ratios  
in Natural Formations

SOV/7-58-5-7/15

from a 0,4 m ammonium oxalate solution onto a target and the alpha activity was determined by means of an apparatus of the type AA. By means of this method some minerals of different age were investigated (Table 1): uraninite, pitchblende, uranium pitch ore, and schroekingerite (Shrekengerit). Only the last mentioned, which is a quaternary formation, showed a deviation of the isotopic ratio of uranium. Furthermore the effect of the leaching out with  $\text{HNO}_3$  and  $\text{Na}_2\text{CO}_3$  on the isotopic ratio was investigated (Table 2). An effect was demonstrated only in the leaching out of uraninite by means of  $\text{Na}_2\text{CO}_3$ . At present the authors of this article investigate the kinetics of the sublimation of uranium from pitchblende. The isotopic ratio of sublimated uranium (800°) was determined. There are 2 tables and 11 references, 8 of which are Soviet.

ASSOCIATION: Radiyevyy institut im.V.G.Khlopina AN SSSR, Leningrad (Leningrad Radium Institute imeni V.G.Khlopin, AS USSR)

Card 2/3

On the Problem of the Shift of Isotopic Ratios  
in Natural Formations

SOV/7-58-5-7/15

SUBMITTED: July 22, 1957

Card 3/3

SCV/10-59-8-26/43

AUTHOR: Starik, I. Ye., Corresponding  
Member, Academy of Sciences, USSR

TITLE: Advances in the Determination of the Absolute Age of Geological Formations (Novyye raboty po opreischeniyu absol'yutnogo vozrasta geologicheskikh formatsiy) Transactions of the 7<sup>th</sup> Annual Conference (VII yezhegodnaya sessiya)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 9, pp. 120-121 (USSR)

ABSTRACT: This conference was held in Moscow from May 9-12. It was attended, among others, by representatives from the Peoples' Republics. 40 reports were heard and discussed. A.A. Polkanov emphasized that measurements of radioactivity are suited in particular for age determinations of Pre-Cambrian formations, for which paleontological methods are not applicable. L.V. Komlev, N.P. Semenenko, reported on the Cambrian stage in Ukrainia. Problems of re-examing and precisising the old scale of geological times is at present of topical interest. A special commission under D.I. Shcherbakov, Member, Academy of Sciences, USSR, was set up to deal with this problem. N.I. Iordanov, Bulgaria (Bolgariya), gave an example of age

Card 1/2

Advances in the Determination of the Absolute Age of Geological Formations. Transactions of the 7<sup>th</sup> Annual Conference SOV/30-58-8-26/43

determination. Professor L.N. Ovchinnikov reported on attempts of determining the age of metallogenetic epochs. Investigations concerning the determination of the velocity of sedimentation were discussed. These studies were conducted in the laboratory of I.Ye.Starik, in the Radiyevyy institut (Radium Institute), and in the laboratory of V.I. Baranov, in the Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo (Institute of Geochemistry and Analytical Chemistry imeni V.I. Vernadskiy). N.I. Polevaya, G.A. Kazakov, were successful in the age determination of glauconites. They based their work upon suggestions by M.M. Rubinshteyn, which were made previously by him in the Vsesoyuznyy geologicheskii institut Ministerstva geologii i okhrany nedr SSSR (All Union Geological Institute of the Ministry of Geology and the Protection of Mineral Resources of the USSR). Kh.I. Amirkhanov, S.B. Brandt achieved the same results in the Dagestanskiy filial Akademii nauk SSSR (Dagestan Branch AS USSR). L.Ya. Krylov, Yu. I. Silin reported on paleogeographical structures. Finally the activity of the laboratories in Sverdlovsk, Ufa, Makhach-Kala, Tbilisi, Alma-Ata and Yerevan was acknowledged.

Card 2/2

STARIK, I.Ye.; STARIK, A.S.; YASHUGINA, Ye.A.; SMIRNOVA, Ye.A.

Quantitative separation of actinium from radioactinium and  
actinium X. Trudy Radiev.inst.AN SSSR. 8:170-176 '58.  
(MIRA 12:2)

(Actinium--Analysis)

STARIK, I.Ye.; NIKOLAYEV, D.S.; STARIK, F.Ye.; MELIKOVA, O.S.

Uranium content in natural waters of the U.S.S.R. Report No. 1.  
Trudy Radiev. inst. AN SSSR. 8:250-261 '58. (MIRA 12:2)  
! (Uranium) (Water—Analysis)

STARIK, I.Ye.; STARIK, F.Ye.; APOLLONOVA, A.N.

Carbonate method for separating microquantities of uranium from  
iron. Trudy kom.anal.khim. 9:264-273 '58. (MIRA 11:11)  
(Uranium) (Iron)

STALIK, I.Ye.; SOBOTOVICH, E.V.; LOVTSYUS, G.P.; NESTEROV, V.P.

Radioactive control of pyrochemical means of quantitative extraction  
of lead from natural formations. Trudy kon.anal.khim. 9:341-348 '58.  
(MIRA 11:11)

(Lead—Metallurgy)

(Radioactive tracers)

SOV/62-58-10-22/25

AUTHORS:

Starik, I. Ye., Skul'skiy, I. A.

TITLE:

Adsorption of Microquantities of Radioactive Elements on Non-Ion Exchange Adsorbents (Adsorbtsiya mikrokolichestv radioelementov na neionoobmennyykh adsorbentakh)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 10, pp 1278 - 1279 (USSR)

ABSTRACT:

The rules governing the non-ion exchange adsorption of radioactive elements have remained almost undiscovered. The investigation of these rules is of interest because they play a part not less important than that of ion exchange adsorption. The authors of this letter studied the adsorption of  $Zr^{95}$ ,  $Nb^{95}$ ,  $Th^{234}$ ,  $Pa^{233}$ ,  $Tl^{204}(I)$  and  $Cs^{137}$  on fluoroplast-4 and paraffin. The surfaces of these adsorbents are hydrophobic and do not have ion exchange properties. The radioactive elements among the conditions investigated were in ionic or molecular disperse state. The adsorption was discovered as a function of the concentration versus  $HNO_3$ , as well as of the  $NH_4NO_3$  and  $KNO_3$  salts. It turned out that in the interval from 0,1 to

Card 1/2

Adsorption of Microquantities of Radioactive Elements  
on Non-Ion Exchange Adsorbents

SOV/62-58-10-22/25

3-5 N  $\text{HNO}_3$ ,  $\text{Zr}^{95}$ ,  $\text{Nb}^{95}$ ,  $\text{Th}^{234}$  and  $\text{Pa}^{233}$  were adsorbed on fluoroplast-4 and paraffin (quantitatively 2-6% from 1 ml solution per 1  $\text{cm}^2$  adsorbent); it was possible to increase the adsorption of these radioactive elements several times by the addition of  $\text{NH}_4\text{NO}_3$  and  $\text{KNO}_3$ . The adsorption intensity apparently depends on the formation of neutral complexes of the type  $[\text{Me}(\text{OH})_x(\text{NO}_3)_y]^0$ . Similar dependences on the nitric acid concentration were also found by other scientists. Based on the data obtained the authors of this paper are of opinion that the "specific adsorption" must be regarded as a molecular one. The absence of the adsorption of  $\text{Cs}^{137}$  and  $\text{Tl}^{204}$  (I) on fluoroplast-4 and paraffin has to be explained by the highly basic elements (which under the conditions investigated do not form any non-charged compounds).

Card 2/3

*Radiochem. Inst. im V.G. Khlopin AS USSR*

STARIK, I.Ye.; PETRZHAK, K.A.; SHATS, M.M.; SEMENYUSHKIN, I.N.; BAK, M.A.

Isotopic composition and abundance of uranium in meteorites.

Meteoritika no.16:126-130 '58.

(Meteorites) (Uranium)

(MIRA 11:8)

3(1)

AUTHORS: Starik, I. Ye., Corresponding Member, SOV/20-123-3-11/54  
Academy of Sciences, USSR, Shats, M. M., Sobotovich, E. V.

TITLE: On the Age of Meteorites (O vozraste meteoritov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 3, pp 424-426  
(USSR)

ABSTRACT: The data on the content of uranium, lead and on the isotopic composition of lead in the meteorites permit a successful investigation of some cosmogonic problems, especially the determination of the age of the meteoric bodies and of the Earth. From the data on the amount of  $Pb^{207}$  and  $Pb^{206}$  in meteorites, C. Patterson found the value of  $4.5 \cdot 10^9$  years for their age. This value is now considered to be the most reliable one. The determination of meteorite age from the data on other lead-uranium isotopes is also of considerable interest. The results of some special investigations of the amount of uranium in meteorites are given in a table. The concentration of uranium in stony meteorites and in pallasite olivine amounts to  $2 \cdot 10^{-7}$  g/g, but in iron meteorites it is

Card 1/4

On the Age of Meteorites

SOV/20-123-3-11/54

$Pb^{207}/Pb^{206}$ . For the chondrites Forest City (Forest Siti) and Modok anomalous high values ( $> 20 \cdot 10^9$  years) were found, which are probably due to too low values of the uranium content in these chondrites. The authors determined the contents of these elements and carried out a mass-isotopic analysis of the lead taken from the same meteorites. The lower values of the age, which were due to the ratios  $Pb^{207}/U^{235}$  and especially  $Pb^{206}/U^{238}$ , are within the error limits of the determination of U and Pb ( $\pm 30\%$ ). The above discussions lead to the following conclusion: for the investigated meteorites, the isotopic composition of lead does not display any noticeable anomalies and also the content of uranium and lead in them is approximately constant. The age of the meteorites deduced from these experimental data agrees with the modern hypotheses about their age. The authors thank the Komitet po meteoritam (Committee for meteorites) which put the samples at their disposal, and

Card 3/4

STARIK, Ionif Yevseyevich, Prinimaya uchastiye: ISHINA, V.A.. ARON, G.M.,  
red.izd-vā; ZAMRAYEVA, R.A., tekhn.red.

[Fundamentals of radiochemistry] Osnovy radiokhimii. Moskva,  
Izd-vo Akad.nauk SSSR, 1959. 459 p. (MIRA 12:11)

1. Chlen-korrespondent AN SSSR (for Starik).  
(Radiochemistry)

S T4 R1 K, 1 1/2.  
21 (0), 5 (0)

AUTHOR:

Shchebetkovskiy, V. H.

SOV/89-7-2-17/24

TITLE:

All-Union Symposium on Radiochemistry (Vsesoyuznyy simpozium po radiokhimii)

PERIODICAL:

Atomnaya energiya, 1959, Vol 7, Nr 2, pp 175-176 (USSR)

ABSTRACT:

A symposium was held in Leningrad from 3 to 5 March 1959. More than 200 participants from different institutes in Moscow, Leningrad, Kiev, Novosibirsk, Tbilisi and Gor'kiy attended it. Twentyeight papers were read. The following are mentioned: I. Ye. Starik: On the problem of the molecular state of micromasses of radioactive elements in solutions; I. Ye. Starik, N. I. Ampelogova, F. L. Ginzburg, L. I. Il'menkova, I. A. Skul'skiy, L. D. Sheydn: Condition of radioactive elements occurring in microconcentrations of solutions (Zr, Am, Pa, Po). M. N. Yakovleva, M. A. Shurshalina: Application of the dialysis method for examination of uranium carriers in natural bodies of water; V. I. Paramonova, Ye. F. Latyshev: Complex formation of the multivalent ruthenium with chlorine ions. K. B. Zaborenko, A. V. Zaval'skaya, V. V. Fomin: Determination of the composition and the instability constants by ion exchange of the cerium oxalate complexes. A. I. Moskvina: Complex formation of plutonium and americium with the anions of

Card 1/1

STARIK, I.Ye.; SKUL'SKIY, I.A.; YURTOV, A.I.

State of tracers of radioactive elements in solutions. Part 5:

State of zirconium in nitrate solutions. Radiokhimiya 1 no.1:  
66-76 '59. (MIRA 12:4)

(Zirconium--Isotopes)

(Nitrates)

STARIK, I.Ye.; SKUL'SKIY, I.A.

State of tracers of radioactive elements in solutions. Part 6:  
State of niobium in aqueous solutions. Radiokhimiia 1 no.1:77-81  
'59. (MIRA 12:4)  
(Niobium--Isotopes) (Solution (Chemistry))

STARIK, I.Ye.; SHEYDINA, L.D.; IL'MENKOVA, L.I.

State of microquantities of radioelements in dilute solutions  
Part 7: Investigation of the state of protactinium in aqueous  
solutions by means of adsorption and desorption. Radiokhimiia 1  
no.2:168-170 '59. (MIRA 12:8)  
(Protactinium) (Sorption)

STARIK, I.Ye.; GINZBURG, F.L.

State of microquantities of radioelements in dilute solutions.  
Part 8: Adsorption of lanthanum on quartz glass and plexiglas.  
Radiokhimiia 1 no.2:171-173 '59. (MIRA 12:8)  
(Lanthanum) (Adsorption)

STARIK, I.Ye.; MELIKOVA, O.S.

Factors affecting the emanating power of synthetic salts and minerals. Effect of the particle size on the emanating power of synthetic salts and minerals from radon, thoron and actinon.  
Radiokhimiia 1 no.2:196-203 '59. (MIRA 12:8)  
(Radioactive substances)

STARIK, I.Ye.; SHEYDINA, L.D.

Method for separating Pa<sup>233</sup>. Radiokhimiya 1 no.3:270-272  
'59. (MIRA 12:10)  
(Protactinium--Isotopes)

STARIK, I.Ye.; KOLYADIN, L.B.; NIKOLAYEV, D.S.

Conditions under which micro quantities of uranium exist in  
solution. Radiokhimiya 1 no.3:317-320 '59. (MIRA 12:10)  
(Uranium)

STARIK, I.Ye.; KUZNETSOV, Yu.V.; LEGIN, V.K.

Forms in which uranium and thorium are found in bottom deposits  
of the Antarctic Ocean. Radiokhimiya 1 no.3:321-324 '59.  
(MIRA 12:10)

(Uranium) (Thorium) (Antarctic Ocean--Deep sea deposits)

STARIK, I.Ye.; AMPELOGOVA, N.I.; GINZBURG, F.L.; LAMBERT, M.S.; SKUL'SKIY, I.A.;  
SHCHERBETKOVSKIY, V.N.

Molecular state of ultramminute quantities of radicelements in  
solutions. Radiokhimiia 1 no.4:370-378 '59. (MIRA 13:1)  
(Radioactive substances)

STARIK, I.Ye.; SKUL'SKIY, I.A.

State of microquantities of radioelements in solutions. Part 9:  
State of microquantities of zirconium in the range of hydrolysis.  
Radiokhimiia 1 no.4:379-383 '59. (MIRA 13:1)  
(Zirconium)

STARIK, I.Ye.; SHEYDINA, L.D.; IL'MENKOVA, L.I.

State of microquantities of radicelements in solutions. Part 10:  
Study of the state of protactinium in aqueous solutions. Radiokhimiia  
1 no.4:391-394 '59. (MIRA 13:1)  
(Protactinium)

STARIK, I.Ye.; AMPELOGOVA, N.I.

State of microquantities of radicelements in solutions. Part 11:  
Electrophoretic mobility of polonium in aqueous solutions. Radiokhimiia  
1 no.4:414-418 '59. (MIRA 13:1)  
(Polonium) (Electrophoresis)

STARIK, I.Ye.; AMPELOGOVA, I.A.

State of microquantities of radioelements in solutions. Part 12:  
Electrochemical study of the state of polonium in aqueous solutions.  
Radiokhimiia 1 no.4:419-424 '59. (MIRA 13:1)  
(Polonium)

STARIK, I.Ye.; GINZBURG, F.L.

State of microquantities of radioelements in solutions. Part 14:  
Study of the state of americium in aqueous solutions. Radiokhimiia  
1 no.4:435-438 '59. (MIRA 13:1)  
(Americium)

STARIK, I.Ye.; RATHER, A.P. [deceased]; PASVIK, M.A. [deceased]; GINZBURG, F.L.

Use of phenylarsonic acid for the separation of neptunium and  
plutonium. Radiokhimiia 1 no.5:545-547 '59. (MIRA 13:2)  
(Benzearsonic acid) (Neptunium) (Plutonium)

STARIK, I.Ye.; SOBOTOVICH, E.V.; LOVTSYUS, G.P.; LOVTSYUS, A.V.; SHATS, M.M.

Determination of the lead content and of its isotope composition  
in iron meteorites. Radiokhimiia 1 no.5:596-602 '59.

(MIRA 13:2)

(Lead--Analysis) (Meteorites)

STARIK, I.Ye.

Ultramminute concentrations of radioelements in solutions. Khim.  
nauka i prom. 4 no.4:448-456 '59. (MIRA 13:8)

1. Chlen-korrespondent Akademii nauk SSSR.  
(Radioactive substances)

5 ~~TAR K. I. Ys.~~

NOV/7-59-6-14/17

V. T.: Knorre, L. O.

(5)

Thronicle. The VIII Session of the Commission for the Determination of the Absolute Age of Geological Formations (at the Odelseniye Geologo-geograficheskikh nauk AN SSSR) (Department of Geological-geographical Sciences AN USSR). (1959) - 22, 1959. Moscow)

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sent to reports are concerned:  
 A. V. Polikarpov, K. K. Gurling Problems of the absolute age of  
 the formation of the Baltic Shield.  
 L. P. Gerasimov, L. V. Kozlov, A. I. Purgolov The absolute  
 age of the Ukrainian crystalline shield.  
 V. P. Gerasimov, Ye. S. Burakov, and V. K. Ivanishin Age  
 of the mineralization of the rocks of the Ukrainian  
 groups of lites are.

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any Tyan' Shan' and the Sayan' metamorphic and sedimentary rocks.  
C. D. Afanas'ev: Results of the geochrony formations of the  
geology of the Caucasus.

G. P. Oreshinnikov

termination of the sedimentary and volcanic formations.  
L. P. Krasnyy and N. I. Poleva: Absolute age of the magmatic formations of the (Soviet) Far East.

Dr. F. Zaitsev,  
rocks of the (Soviet) Far East.  
Dr. V. Koniev: Absolute age of the granite intrusions of  
Karakhstan. member of Laboratories, NIAN, UssSR.

The research work of a number of laboratories, VNIIG, GOSKhim, and others, etc. aroused great attention, especially in the USSR, and in Japan, etc. Shukolyukov on the occasion of a report of E. K. Gerling, Yu. A. Shukolyukov as well as

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**V. K.** - was engaged in his report how

same photometry. The determination of the age of the rocks was discussed. A. Ya. Izrael proved in his report how well radiogenic argon is conserved in destroyed products of rocks such as boulders, sands, sandstones, clays, and muds. The first attempts to determine the age of the rocks were the first to attempt to

A. I. Zhuravsky and S. I. Lykov were the first to attempt to determine the absolute age of sedimentary carbonate formations according to isotopic composition of lead.

according to isotopic composition of

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**APPROVED FOR RELEASE: 08/25/2000**

**CIA-RDP86-00513R001652920001-5"**

SOV/62-59-6-1/36

5 (2)  
AUTHOR:

Starik, I. Ye.

TITLE:

The Form in Which Radioelements Occur in Crystalline Substances (Forma nakhozhdeniya radioelementov v kristallicheskikh veshchestvakh)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 955-962 (USSR)

ABSTRACT:

The present paper is a synopsis of the investigations which the author carried out together with his coworkers in the field mentioned in the title since 1929. The method suggested here, that is a comparative leaching out and examination of the emanation, proved to be most suitable for determining in what form radioelements in microquantities occur in crystalline substances. By means of the experimental results obtained by the above mentioned method the assumptions on a different arrangement of the initial substances and their decomposition products in the crystal lattice, which were already previously made (Tables 1-9), could completely be verified. The possible separation of the isotopes, the initial substances, and their decomposition products (Th and RdTh, UI and UII, Pb and RaD) may be explained by their different position in the crystal

Card 1/2

The Form in Which Radioelements Occur in  
Crystalline Substances

SOV/62-59-6-1/36

lattice. The lesser possibility, as compared with ThX, of leaching out RnTh mainly results from a greater adsorbing capacity of RnTh compared with ThX. The well known content of radioelements in mineral waters is in good agreement with the assumption on the migration mechanism of the radioelements. The conditions for this migration of the radioelements from minerals also hold for the form of the radioelements in artificially produced salts. There are 3 figures, 9 tables, and 1 Soviet reference.

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR  
(Radium Institute imeni V. G. Khlopin of the Academy of  
Sciences, USSR)

SUBMITTED: October 1, 1957

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SOV/11-59-9-9/18

3(5)

AUTHORS:

Starik, I.Ye., Sobotovich, E.V. and Shats, M.M.

TITLE:

On the Problem of the Age of Tektites

PERIODICAL:

Izvestiya Akademii nauk SSSR, Seriya geologicheskaya, 1959, Nr 9, pp 90-91 (USSR)

ABSTRACT:

The origin of tektites has not yet been determined. Some geologists suppose that the tektites are of cosmic origin. Their absolute age, determined by the K-Ar method by E.K. Gerling and M.L. Yashchenko, is between  $1.7 \times 10^7$  and  $7.3 \times 10^6$  years, that is considerably less than the absolute age of stone meteorites. The authors determined the age of a tektite by the lead method. Presuming that the tektite is of cosmic origin, the authors fixed its age between  $4.7 \times 10^9$  and  $3.7 \times 10^9$  years. On the other hand, presuming that it is of terrestrial origin and is a product of remelting of some sedimentary rocks, and taking the isotope composition of Tertiary or Quaternary

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On the Problem of the Age of Tektites

lead, the authors fixed the age of the tektite at 3 billion years, instead of a few million as was to be expected. Thus, say the authors, the substance from which tektites originated must be of cosmic origin, although further research is necessary. There is 1 Soviet and 1 English reference.

ASSOCIATION: Radiyevyy institut imeni V.G. Khlopina (The Radium Institute imeni V.G. Khlopin), Leningrad

SUBMITTED: 9 September 1958

Card 2/2

5(2)  
AUTHORS:

Starik, I. Ye., Starik, F. Ye.,  
Lazarev, K. F.

SOV/75-14-3-9/29

TITLE:

Photometric Determination of Micro-Quantities of  
Thorium (Fotometricheskoye opredeleniye mikrokolichestv  
toriya)

PERIODICAL:

Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 3,  
pp 306-312 (USSR)

ABSTRACT:

The optical conditions for the photometric determination of thorium were devised on the basis of standard curves by means of the colorimetric photometer FEK-M using thoron as reagent. As can be seen from the figure the influence exercised by Ce and La upon the light absorption is suppressed at pH 0.96 - 0.85. Small calcium amounts do not disturb. The separation of thorium from sodium, potassium, calcium, and barium is carried out by precipitation of thorium together with  $\text{Fe}(\text{OH})_3$ . The quantitative precipitation was checked with  $\text{UX}_1$  and  $\text{RdTh}$ . The separation of thorium from iron and uranium was carried out in weakly acid solution by precipitation with calcium oxalate. The mean absolute error was  $\pm 0.3\%$  at  $1 - 10 \mu\text{g Th}$ .

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Photometric Determination of Micro-Quantities of  
Thorium

SOV/75-14-3-9/29

The maximum error does not exceed  $\pm 0.5\%$ . There are 1 figure,  
4 tables, and 23 references, 5 of which are Soviet.

ASSOCIATION: Radiyevyy institut AN SSSR, Leningrad imeni V. G. Khlopina  
(Institute of Radium imeni V. G. Khlopin, Academy of Sciences,  
USSR, Leningrad)

SUBMITTED: February 3, 1958

Card 2/2

STARIK, I.Ye., KURBATOV, V.V., LITVINA, L.A.

Effect of heat on the texture of micas and microcline and the  
preservation of argon in them. Zap. Vses. min. ob-va 88 no.6:724-  
728 '59. (MIRA 13:8)

1. Radiyevyy institut im. V.G.Khlopina AN SSSR, Leningrad.  
(Microcline) (Mica) (Argon)

3 (5)  
AUTHORS:

Starik, I. Ye., Corresponding Member  
~~AS USSR~~, Ravich, M. G., Krylov, A. Ya.,  
Silin, Yu. I.

SOV/20-126-1-39/62

TITLE:

On the Absolute Age of the Rocks of the East-Antarctic Platform  
(Ob absolyutnom vozraste porod Vostochno-Antarkticheskoy plat-  
formy)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 144 - 146  
(USSR)

ABSTRACT:

In the present paper the first determination results of the rocks mentioned in the title, mainly of Precambrian age, are discussed. For this purpose the collection of the Sovetskaya antarkticheskaya ekspeditsiya (Soviet Antarctic Expedition) 1956-58 was used. It was collected during the prospecting of a coastal strip of almost 5000 km length (Refs 1,2). The investigated region has the structure of a 3-stage plateau which is in many a respect analogous to the other Godvanskiye platforms. All three stages are characterized in short. No Mesozoic sediments have hitherto been found in the region of the mentioned plateau. Cenozoic sediments are only represented by covers of basic effusives among which leucite basalts predominate. The

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